

## Appendix F

## Tobamovirus Methyltransferase

1  
 TMV-KR MAYTQTATTSALLD TVRGNN SLVNDLAKRRLYDTAVEEFNARDRRPKVNF  
 TMV-Rak MAYTQTATTSALLD TVRGNN SLVNDLAKRRLYDTAVDEFNARDRRPKVNF  
 TMV-vul MAYTQTATTSALLD TVRGNN SLVNDLAKRRLYDTAVEEFNARDRRPKVNF  
 TOMV MAYTQTATSSALLE TVRGNN TLVNDLAKRRLYDTAVDEFNARDRRPKVNF  
 PMMV MAYTQQATNAALASTLRGNNPLVNDLANRRLYESAVEQCNAHDRRPKVNF  
 TMGMV MAHIQSIISNALLE SVSGKNTLVNDLARRRMYDTAVEEFNARDRRPKVNF  
 TMV-OB MAHIQQSMQGALLD TVRGQNSLVNDLAKRRLYDTAVEEFNAKDRRPKINF  
 ORSV MAHFQQTMNTKVT EAGIGRNSLVNDLAQRRVYDKPVEELNHRSSRPKVNF  
 TVCV MAQFQQTIDMQTLQAAAGRNSLVNDLASRRVYD NAVEELNARSRRPKVHF  
 CR-TMV MAQFQQTIDMQTLQAAAGPNSLVNDLASRRVYD NAVEELNARSRRPKVHF  
 RMV-SH MAQFQQTVNMQTLQAAAGRNSLVNDLASRRVYD NAVEELNARSRRPKVHF  
 CRMV MAQFQQTVNMQTLQAAAGRNSLVNDLASRRVYD NAVEELNARSRRPKVHF  
 TMV-CG MAQFQQTVNMQTLQAAAGRNSLVNDLASRRVYD NAVEELNARSRRPKVHF  
 CGMMV MANINEQINNQRDAAASGRNNLVSQLASKRVYDEAVRSLDHQDRRPKMNF  
 CGMMV-W MANINEQINNQRDAAASGRNNLVSHLASKRVYDEAVRSLDHQDRRPKMNF  
 CFMMV MANITQHINDTREAAAAGRNPLVAQLASKRVYDEAVKSLDSQDKRPKVNF  
 YCGMMV MANITQQI IDTREAAAAGRNPLIAQLASKRVYDEAVKSLDTQDKRPKVNF  
 SHMV ---MSTSTLINKAQTNSCGDVGVVDLLKRKVYDDTVKTMQGLDRRAKYRL

51  
 TMV-KR SKVISEEQTLIATRAYPEFQITFYNTQNAVHSLAGGLRSLELEYLMMQIP  
 TMV-RAK SKVISEEQTLIATRAYPEFQITFYNTQNAVHSLAGGLRSLELEYLMMQIP  
 TMV SKVISEEQTLIATRAYPEFQITFYNTQNAVHSLAGGLRSLELEYLMMQIP  
 TOMV SKVISEEQTLIATRAYPEFQITFYNTQNAVHSLAGGLRSLELEYLMMQIP  
 PPMV LRSISEEQTLIATKAYPEFQITFYNTQNAVHSLAGGLRSLELEYLMMQIP  
 TMGMV SKTISEEQTLIVSNAYPEFQITFYNTQNAVHSLAGGLRALELEYLMLQVP  
 TMV-OB SKSINEEQTLIVSQAYPEFQITFYNTQLAVHSLAAGLRSLELEYLMMQVP  
 ORSV SKVISQEIIQATNAYAEFEITFYNTQLAVHSMAGGLRALELEYRRMQIP  
 TVCV SKAVSTEQTLIATNAYPEFEISFTHTQSAVHSLAGGLRSLELEYLMMQVP  
 CR-TMV SKAVSTEQTLIATNAYPEFEISFTHTQSAVHSLAGGFRSLELEYLMMQVP  
 RMV-SH SKSVSTEQTLASNAYPEFEISFTHTQHAVHSLAGGLRTLELEYLMMQVP  
 CRMV SKSVSTEQTLASNAYPEFEISFTHTQQAVHSLAGGLRTLELEYLMMQVP  
 TMV-CG SKSVSTEQTLASNAYPEFEISFTHTQQAVHSLAGGLRTLELEYLMMQVP  
 CGMMV SRVSTEHTRLVTDAYPEFSISFTATKNSVHSLAGGLRLLELEYMMMQVP  
 CGMMV-W SRVSTEHTRLVTDAYPEFSISFTATKNSVHSLAGGLRLLELEYMMMQVP  
 CFMMV ARVLTTEQTRKVTESYPEFSISYASALSVHSLAGGLRYLEGEYLMQVP  
 YCGMMV SRVLSTEQMRVVTENYPEFSVSYTGSALSVHSLAGGLRYLEGEYLMQVP  
 SHMV NQCLGPEQCRTVRGGYPEFQIEFTGASNTSHAMAAGLRGLELEYLYTLVP

101  
 TMV-KR YGSLTYDIGGNFASHLFKGRAYVHCCMPNLDVRDIMRHGQKDSIELYLS  
 TMV-RAK YGSLTYDIGGNFASHLFKGRAYVHCCMPNLDVRDIMRHGQKDSIEL---  
 TMV YGSLTYDIGGNFASHLFKGRAYVHCCMPNLDVRDIMRHGQKDSIELYLS  
 TOMV YGSLTYDIGGNFASHLFKGRAYVHCCMPNLDVRDIMRHGQKDSIELYLS  
 PPMV YGSTTYDIGGNFAAHMFKGRDYPVHCCMPNMDLRDVMRHNAQKDSIELYLS  
 TMGMV YGSPTYDIGGNFAAHLFKGRDYPVHCCMPNLDIRDIMRHGQKDSIEMYS  
 TMV-OB YGSLTYDIGGNFAAHLFKGRDYPVHCCMPNLDIRDIMRHENQKDSVATYLS  
 ORSV FGSITYDIAGNFSAHIYKGRDYPVHSCMRNLDIRDVARHINQQDTVSSYVA  
 TVCV FGSITYDIGGNFSAHLFKGRDYPVHCCMPNLDVRDIARHEGHKEAIIYSYVN  
 CR-TMV FGSITYDIGGNFSAHLFKGRDYPVHCCMPNLDVRDIARHEGHKEAIIHSYVN  
 RMV-SH FGSITYDIGGNFAAHLFKGRDYPVHCCMPNLDVRDIARHEGHKEAIFSLS  
 CRMV FGSITYDIGGNFAAHLFKGRDYPVHCCMPNLDVRDIARHEGHKEAIFSLS  
 TMV-CG FGSITYDIGGNFAAHLFKGRDYPVHCCMPNLDVRDIARHEGHKEAIFSIS  
 CGMMV YGSPCYDIGGNYTQHLFKGRSYVHCCNPCLDLKDVARNVMYNDMITQHVQ  
 CGMMV-W YGSPCYDIGGNYTQHLFKGRSYVHCCNPCLDLKDVARNVMYNDVVTQHVQ  
 CFMMV YGSPVYDIGGNYSQHMLKGRAYVHCCNPCLDLKDVIARNEMYKDAIDRYVH

YCGMMV YGSPCHYIGGNYSQHMLKGRSYVHCCNPCLDLKDVARNEMYKDAIERYVT  
 SHMV YGAVSYDIGGNFPAHMMKGRSYVHCCNPALDARDLARNENYRISIENYLS

151

TMV-KR RL-----ERGG--KTVPNFQKEAFDRYAELPEDAVCHNTF  
 TMV-RAK -L-----DRGG--KTVPNFQKEAFDRYAELPEDAVCHNTF  
 TMV RL-----ERGG--KTVPNFQKEAFDRYAEIPEDAVCHNTF  
 TOMV RL-----ERGN--KHVPNFQKEAFDRYAEMPNEVVCHDTF  
 PPMV KL-----AQKK--KVI PPYQKPCFDKYTDDPQSVVCSKPF  
 TMGMV RL-----SRSN--KVIPEFQREAFNRYAEAPNEVCCSKTF  
 TMV-OB RL-----KARN--KVLPAFQQEAFQRYSESRDEVVCNNTF  
 ORSV RL-----ERSK--RGLPVFQQSAFNKYMSDPDAVCSDKRF  
 TVCV RL-----KRQQ--RPVPEYQRAAFNRYAENPHFVHCDKPF  
 CR-TMV RL-----KRQQ--RPVPEYQRAAFNRYAENPHFVHCDKPF  
 RMV-SH RL-----DRQK--RPVPEYQRAAFYNYAENPHFVHCDRPF  
 CRMV RL-----DRQR--RPVPEYQRAAFHNYAENPHFVHCDRPF  
 TMV-CG RL-----DRQR--RPVPEYQRAAFNRYAENPHFVHCDRPF  
 CGMMV RH-----KGSCGCRPLPTFQIDAFRRYDSSPCAVTCSDF  
 CGMMV-W RH-----KGSGGCRPLPTFQIDAFRRYDSSPCAVTCSDF  
 CFMMV KKREAPRSNAWRARAESVQEIKDGRLPWSQIDAFQRYKDCPRAVTCNDVF  
 YCGMMV KKRDGPRSVAWRSQAESSQETKFAGLPSWQMDAFRRYHSDPSSVTCPDVF  
 SHMV RFEDKSGDYCQWQR---KKPKVSKPLPRYQKACFDRYNEDPEHVTCTSETF

201

TMV-KR QTMRHQPMQQSGRVYAIALHSIYDI PADEFGAALLRKNVHTCYAAFHFSE  
 TMV-RAK QTCEHQPMQQSGKVYAIALHSIYDI PADEFGAALLRKNVHTCYAAFHFSE  
 TMV QTMRHQPMQQSGRVYAIALHSIYDI PADEFGAALLRKNVHTCYAAFHFSE  
 TOMV QTCRHSQECYTGRVYAIALHSIYDI PADEFGAALLRKNVHVCYAAFHFSE  
 PPMV QHCEGV-SHCTDKVYAVALHSLYDI PADEFGAALLRRNVHVCYAAFHFSE  
 TMGMV QDCRIHPPENSGRRYAVALHSLYDI PVHEFGAALLSKNIHVYAAASILAE  
 TMV-OB QCCESNRYSSGGRVYAI SLHSLYDI PADELGAALLRKNVHTLYAAFHFAE  
 ORSV QECSYS-VDLPGKTYAVGLHSIYDI PADEFGAALLRKDVHICYAAFHISE  
 TVCV QQCELT-TAYGTDTYAVALLHSIYDI PVEEFGSALLRKNVKTCTFAAFHFHE  
 CR-TMV QQCELT-TANGTDTYAVALLSIYDI PVEEFGSALLRKNVKTCTFAAFHFHE  
 RMV-SH QQCEIS-TVNGADTYAIALHSIYDI PADEFGAALLRKNVKICYAAFHFHE  
 CRMV QQCELS-TVNRWDTYAIALHSIYDI PADEFGAALLRKNVKICYAAFHFHE  
 TMV-CG QQCKLS-AANGADTYAIALHSIYDI PVDEFGAALLRKNVKICYAAFHFHE  
 CGMMV QECSDY-FGSGRDNHAVSLHSIYDI PYSSIGPALHRKNVRVCYAAFHFSE  
 CGMMV-W QECSDY-SGSGGDNHAVSLHSIYDI PYSSIGPALHRKNVRVCYAAFHFSE  
 CFMMV QECQYE-HTRRGDRYAVALLHSIYDI PFEQIGPALLRKNIKVLFAAFHFSE  
 YCGMMV QQCEHE-FSRGGDRYAVALLHSIYDVPCEQIGPALLRKNIKVLFAAFHFSE  
 SHMV EKCRISPPAERDDIYATSLHSLYDI PYQNLGPALARKRIKVLHAAFHFSE

251

TMV-KR NLLLEDSYVNLDEINACFSRDGDKLTFSFAESTLNYCHSYSNILKYVCK  
 TMV-RAK NLLLEDSYVNLDEINACFSRDGDKLTFSFAESTLNYCHSFSNILKYVCK  
 TMV NLLLEDSYVNLDEINACFSRDGDKLTFSFAESTLNYCHSYSNILKYVCK  
 TOMV NLLLEDSHVNLDENACFQRDGDRLTFSFAESTLNYSHSYSNILKYVCK  
 PPMV NLLLEDSYVSLDDIGAFFSREGDMLNFSFVAESTLNYTHSYSNVLKYVCK  
 TMGMV ALLLDQTEVTLNEIGATFKREGDDVSFFFAESTLNYSHKYKNILHYVVK  
 TMV-OB ELLLEVSTVELPTIGGIFSRDGDKINFCFSNESTLNYSHSYSNLLKYVCK  
 ORSV NLLLETSAPLDEIGATKYKSGDRLSFFIQNESTLNYEHSYKNVIKYVCK  
 TVCV NMLLDCDVTTLDEIGATFQKSGDNLSFFFHNESTLNYTHSFSNI IKYVCK  
 CR-TMV NMLLDCDVTTLDEIGATFQKSGDNLSFFFHNESTLNYTHSFSNI IKYVCK  
 RMV-SH NMLLDCDVTTLDEIGATFQKSGDNLSFFFHNESTLNYTHSFSNI IKYVCK  
 CRMV NMLLDCDVTTLDEIGATFQKSGDNLSFFFHNESTLNYTHSFSNI IKYVCK  
 TMV-CG NMLLDCDVTTLDEIGATFQKSGDNLSFFFHNESTLNYTHSFSNI IKYVCK  
 CGMMV ALLLGSPVGNLNSIGAQFRVDGDDVHFLFSEESTLHYTHSLENIKLIVMR  
 CGMMV-W ALLLGSPVGNLNSIGAQFRVDGDDVHFLFSEESTLHYTHSLENIKLIVMR  
 CFMMV ELLLGQSF GALPNIGAFFTVNGDSVEFQFEEESTLHYSHSFQNIKIVTR

YCGMMV DLLIGSEFGRLPNVGAFSVDGDSVNFQFEDESTLHYTHSFSNIRKIVTR  
 SHMV DLLLGASEGLLTQIGGTGFRNGDVLTFSLDESSLIIYTHSFRNVFEYVTR

301

TMV-KR TYFPASNREVYMKFLVTRVNTWFCKFSRIDTFLLYKGVAAHKSVDSEQFY  
 TMV-RAK TYFPASNREVYMKFLVTRVNTWFCKFSRIDTFLLYKGVAAHKSVDSEQFY  
 TMV TYFPASNREVYMKFLVTRVNTWFCKFSRIDTFLLYKGVAAHKSVDSEQFY  
 TOMV TYFPASNREVYMKFLVTRVNTWFCKFSRIDTFLLYKGVAAHKSVDSEQFY  
 PPMV TYFPASSREVYMKFLVTRVNTWFCKFSRLDTFVLYRGVYHRGVDKEQFY  
 TMGMV SYFPASSRIVYFKEFLVTRVNTWFCKFTKVDYIILYKSVRQVGCDSQDYFY  
 TMV-OB TYFPASNRFVYMKFLITRVNTWFCKFTKLDYTYLYRGVYHRGCDQQEFY  
 ORSV TFIPASNRFVYHKEFMCTRVNTWFCKFTKVDYTYFLFRGVYTRGEDSEQFY  
 TVCV TFFPASQRFVYHKEFLVTRVNTWYCKFTRVDFTTLFRGVYHNNVDCEEFY  
 CR-TMV TFFPASQRFVYHKEFLVTRVNTWYCKFTRVDFTTLFRGVYHNNVDCEEFY  
 RMV-SH TFFPASQRYVYHKEFLVTRVNTWYCKFTRVDFTTLFRGVYRTSVDSEEFY  
 CRMV TFFPASQRYVYHKEFLVTRVNTWYCKFTRVDFTTLFRGVYKTSVDSEEFY  
 TMV-CG TFFPASQRYVYHKEFLVTRVNTWYCKFTRVDFTTLFRGVYRSSVDSEEFY  
 CGMMV TYFPADDRFVYIKEFMVKRVDTFFFRLVRADTHMLHKSVDGHYS-KS-----  
 CGMMV-W TYFPADDRFVYIKEFMVKRVDTFFFRLVRADTHMLHKSVDGHYS-KS-----  
 CFMMV TYFPASDRVVYVKEFMVKRVDTFFFRMVRVDTHMLHKSVDGTYP-VC-----  
 YCGMMV TFFPASDRVVYVKEFMVKRVDTFFFRMVRVDTHMLHKSVDGQYQ-VS-----  
 SHMV TFFVACNRYAYMKEFRSRRVDTVFCSFIRIDTYCLYRSVFKDC-DEHV-F

351

TMV-KR TAMEDAWHYKKTLMCNSERILLEDSSSVNYWFPKMRDMVIVPLFDISLE  
 TMV-RAK TAMEDAWHYKKTLMCNSERILLEDSSSVNYWFPKMRDMVIVPLFDISL-  
 TMV TAMEDAWHYKKTLMCNSERILLEDSSSVNYWFPKMRDMVIVPLFDISLE  
 TOMV KAMEDAWHYKKTLMCNSERILLEDSSSVNYWFPKMRDMVIVPLFDISLE  
 PPMV SAMEDAWHYKKTLMAMNSERILLEDSSSVNYWFPKMKDMVIVPLFDVSLQ  
 TMGMV EAMEDAFAYKKTLMAMNSERILLEDSSSVNYWFPKMKDMVIVPLFEGSIT  
 TMV-OB SAMEDAWHYKKTLMAMNSERIVLEDHSSSVNYWFPKMKDMVIVPLFDVSLE  
 ORSV TAMDEAWHYKKTLMAMNSERTIFRDRAAVNFRFPKVKDMVIVPLFDGSVT  
 TVCV KAMDDAWHYKKTLMAMNAERTIFKDNAALNFWFPKVRDMVIVPLFDASIT  
 CR-TMV KAMDDAWHYKKTLMAMNAERTIFKDNAALNFWFPKVRDMVIVPLFDASIT  
 RMV-SH KAMDDAWHYKKTLMAMNSERTIFKDSAMNFWFPKVRDMVIVPLFDASIT  
 CRMV KAMDDAWHYKKTLMAMNSERTIFKDSAAINFWFPKVRDMVIVPLFDASIT  
 TMV-CG KAMDDAWHYKKTLMAMNSERTIFKDSAMNFWFPKVRDMVIVPLFDASIT  
 CGMMV -----KSEYFALNTPPIFQDKATFSVWFPEAK-KVLI PKFELSRF  
 CGMMV-W -----KSEYFALNTPPIFQDKATFSVWFPEAKRKVLI PKFELSRF  
 CFMMV -----ATNYFSLKSSPIFQDKATFSVWFPAKSKVVIPIFKMQGF  
 YCGMMV -----KNDYYSLKSSPVFQDKATFSVWFPAKSKVVIPLFEMQGF  
 SHMV AAMDDAWEFKKKRVMLEASRPINFNDVAQFNVPNAKDKVCLPIFAVKS

401

TMV-KR TSKR--TRKEVLVSKDFVFTVLNHIRTYQAKALTYANVLSFVESIRSRVI  
 TMV-RAK -----SRKEVLVSKDFVFTVLNHIRTYQAKALTYANVLSFVESIRSRVI  
 TMV TSKR--TRKEVLVSKDFVFTVLNHIRTYQAKALTYANVLSFVESIRSRVI  
 TOMV TSKR--TRKEVLVSKDFVFTVLNHIRTYQAKALTYSNVLSFVESIRSRVI  
 PPMV NEGKRLARKEVMVSKDFVFTVLNHIRTYQSKALTYANVLSFVESIRSRVI  
 TMGMV SKKM--TRSEVINRDFVFTVLNHIRTYQAKALTYQNVLSFVESIRSRVI  
 TMV-OB TQKR--TKKEVIVSKDFVFTVLNHIRTYQAKALTYNNVLSFVESIRSRVI  
 ORSV SGKM--KRREVMVNKDFVFTVLNHIRTYQDKALTYKNVLSFVESIRSRVI  
 TVCV TGRM--SRREIMVNKDFVFTVLNHIKTYQAKALTYANVLSFVESIRSRVI  
 CR-TMV TGRM--SRREVMVNKDFVFTVLNHIKTYQAKALTYANVLSFVESIRSRVI  
 RMV-SH TGRM--SRREVLVNKDFVFTVLNHIKTYQAKALTYANVLSFVESIRSRVI  
 CRMV TGRM--SRREVLVNKDFVFTVLNHIKTYQAKALTYANVLSFVESIRSRVI  
 TMV-CG TGRM--SRREVLVNKDFVFTVLNHIKTYQAKALTYANVLSFVESIRSRVI  
 CGMMV LSGNVKISR-MLVDADFVHTIINHISTYDNKALVWKNVQS FVESIRSRVI  
 CGMMV-W LSGNVKISR-MLVDADFVHTIINHISTYDNKALVWKNVQS FVESIRSRVI  
 CFMMV FTGSIVA EK-MMIDASFIHTVINHICTYDNKALTWRNVQS FVESIRSRV

YCGMMV FSGTLKSKK-MLVDATFIHTVINHICTYDNKALTWRNVQSFVESF-GLGC  
 SHMV SGAPVTTRH-ILVEKDFYWTALNHILTYPDGKADFRGVMSFLESIRSRVV

451

TMV-KR INGVTARSEWDVDKSLQSLSMTFYLHTKLAVLKDDLLISKFSLGSKTVC  
 TMV-RAK INGVTARSEWDVDKSLQSLSMTFYLHTKLAVLKDDLLISKFSLGSKTVC  
 TMV INGVTARSEWDVDKSLQSLSMTFYLHTKLAVLKDDLLISKFSLGSKTVC  
 TOMV INGVTARSEWDVDKSLQSLSMTFYLHTKLAVLKDDLLISKFALGPKTVS  
 PPMV INGVTARSEWDVDKALLQSLSMTFLLQTKLAMLKDDLVLVQKFQVHKSALT  
 TMGMV INGVTARSEWDVDKAILQPLSMTFLLQTKLALQDDIVMGKFRCLDKTTS  
 TMV-OB INGVTARSEWDVDKALLQSMAMTFLLITKLSMLKDELLVSKFTLSAKSVH  
 ORSV MNGVTARSEWEVDKSVLQPLSMTFLLQTKLAEAKDQVVLKKFQKIDDTVT  
 TVCV INGVTARSEWDTDKAILGPLAMTFLLITKLGHVQDEIILKKFQKFDRTTN  
 CR-TMV INGVTARSEWDTDKAILGPLAMTFLLITKLGHVQDEIILKKFQKFDRTTN  
 RMV-SH INGVTARSEWDTDKAILGPLAMTFLLVTKLSHVQDEIVLKKFQKFDATAK  
 CRMV INGVTARSEWDTDKAILGPLAMTFLLVTKLSHVQDEIVLKKFQKFDATAK  
 TMV-CG INGVTARSEWDTDKAILGPLAMTFLLVTKLSHVQDEIVLKKFQKFDATTK  
 CGMMV VNGVSVKSEWNPVDQLTDISFSIFPLVKVRKVQIELMSDKVVEIARGLL  
 CGMMV-W VNGVSVKSEWNPVDQLTDISFSIFLLVKVRKVQIELMSDKVVEIARGLL  
 CFMMV VNGVSVSEWDVPVELLTDISFTVFLLVKVKKTQIEIMSDKIVTQPQGLI  
 YCGMMV MNGVSVRSEWDVPIEMLCDISFTVFLTVKV-KVQIEIMSEKIVTQPQGLL  
 SHMV INGTTTASQWEVDKSQLKDIALSLLLIKLEKLIKISVIEKRIKIERQGLV

501

TMV-KR QHVWDEISLAFGNAPPSVKERLLNRKLIRVAGDALEIRVPDLYVTFHDRL  
 TMV-RAK QHVWDEISLAFGNAPPSVKERLLNKKLIRAAGDALEIKVPDLYITFHDRL  
 TMV QHVWDEISLAFGNAPPSVKERLLNRKLIRVAGDALEIRVPDLYVTFHDRL  
 TOMV QHVWDEISLAFGNAPPSIKERLINRKLITENALEIRVPDLYVTFHDRL  
 PPMV EYVWDEITAAFNCFPTIKERLINKKLITVSEKALEIKVPDLYVTFHDRL  
 TMGMV ELIWDEVGKFFGNVFPTIKERLVSRLKILDVSENALKIKIPDLYVTWKDRF  
 TMV-OB EHVWDEIKRGCNMFPSLKESSLRKKLISGSAEELEIEVPMYVTFHDFR  
 ORSV NLFWKQISDAVGDLEFSPKIKERLISGGFVKVAEQSLQIKTPDEYITFADKL  
 TVCV ELIWTSLCDALMGVIPS VKETLVRGGFVKVAEQALEIKVPELYCTFADRL  
 CR-TMV ELIWTSLCDALMGVIPS VKETLVRGGFVKVAEQALEIKIPELYCTFADRL  
 RMV-SH ELIWSSLCDALKGVIPS VKETLARGGFVKLAEESELEIKIPELYCTFTDRL  
 CRMV ELIWSSLCDALKGVIPS VKETLARGGFVKLAEESELEIKIPELYCTFTDRL  
 TMV-CG ELIWTSLCDALKGVIPS VKETLARGGFVKLAEESELEIKIPELYCTFTDRL  
 CGMMV RRFADSLKSAVEGLGDCVYDALVQTGWFDTSDELKVLLPEPFMTFSDYL  
 CGMMV-W RRFADSLKSAVEGLGDCVYDALVQTGWFDTSDELKVLLPEPFMTFSDYL  
 CFMMV ERIVQVRSEAFEGCTEAVQKALLTSGWFRTPADDLVLDIPELFMDFHDFL  
 YCGMMV LRLAQKVSDAFEGCTATIHAALMSTGWFRCADELVEAPELFMDFHDFL  
 SHMV SLLKEFLHGLLDEYTQTMAEWVVEKGWVKSVDQVLQVTIPDLVLNFRDHF

551

TMV-KR VTEYKASVDMPALDIRKKMEE--TEVMYNALSEL SVLRESKDFD VDFVSQ  
 TMV-RAK VA EYKSSVDMPALDIRKRMEE--TEVMYNALSEL SVLRESKDFD VDFVSQ  
 TMV VTEYKASVDMPALDIRKKMEE--TEVMYNALSEL SVLRESKDFD VDFVSQ  
 TOMV VSEYKMSVDMPVLDIRKKMEE--TEVMYNALSEL SVLKNSDKDFD VDFVSQ  
 PPMV VKEYKSSVEMPVLDVKKSL EE--AEVMYNALSEI SILKDSKDFD VDFVSR  
 TMGMV VA EYTKSEELPHLDIKDLEE--AEQMYDALSEL SILKGADNFDIAKF KD  
 TMV-OB VA EYKASVEMPTIDISKDLSE--AESYYSALSEL SVLENSKDFDLEKFSR  
 ORSV VMEYKATEELQHLDISKPLER--AEKYYNALSEL SVLKESEDFDITQFKN  
 TVCV VLQYKKAEEFQSCDLSKPLEE--SEKYYNALSEL SVLENLDSFDLEAFKT  
 CR-TMV VLQYKKAEEFQSCDLSKPLEE--SEKYYNALSEL SVLENLDSFDLEAFKT  
 RMV-SH VLEYKRTEEFQSCDLSKPLEE--SEKYYNALSEL SVLENLDSFDLDAFKE  
 CRMV VLEYKRTEEFQSCDLSKPLEE--SEKYYNALSEL SVLENLGSFDLDAFKE  
 TMV-CG VLQYKMAEEFKSCDLSKPLEE--SEKYYNALSEL SVLENLDSFDLDGFKE  
 CGMMV EGMYEADAKIERESVSELLAS--GDDL FKKIDEIRNNYSGVEFDVEKFQE  
 CGMMV-W EGTYEADAKIERESVSELLAS--GDDL FKKIDEIRNNYSGVEFDVEKFQE  
 CFMMV SGVFESRMLVLRRTVEKCFKRFP TSFIRLYRKL CERYSGIEFDLEQVSD

YCGMMV SAAWEADAKIEAANVESVLDA--SDRLYTTVNELCERYSGIEFDLEKFTD  
 SHMV RCEFRTSANVSEVNVSEHLVA--TNEY YAKVSDLVDRNPTLAFDFEKFQD

601

TMV-KR MCQSLEVDPMATAAKVIVAVMSNESGLTLT FERPTEANVALALQDQ-EKAS  
 TMV-RAK MCKSLEVDPMATAAKVIVAVMSNESGLTLT FERPTEANVAQALQDQ-EKAS  
 TMV MCQSLEVDPMATAAKVIVAVMSNESGLTLT FERPTEANVALALQDQ-EKAS  
 TOMV MCQSLEVDPMATAAKVIVAVMSNESGLTLT FEQPTEANVALALQDS-EKAS  
 PPMV MCNTLGVDPLVAAKVMVAVVSNESGLTLT FERPTEANVALALQPTITSKE  
 TMGMV MCKALDVSPDVAARVIVAVAENRSGTLT FDKPTEENVAKALKSTASEAV  
 TMV-OB MCAINCVPNDIAAKIVVAVLSNESGVTLPFKEPTEGNMAEAMKSGEKDEV  
 ORSV LCEEKDIAPDLAKVIVPIMKNE--LTLPFNNPTPEALSDALSPLPKDLD  
 TVCV LCQQKNVDPDMAAKVVVAIMKSE--LTLPFKKPTEEEISESLKPGECSA  
 CR-TMV LCQQKSVDPMATAAKVVVAIMKCE--LTLPFKKPTEEEISESLKTGEGTSA  
 RMV-SH LRQKKNVDPDVAAKVMVAIMNSE--LTLPFKKPTEEEVAEALSGEVVQDE  
 CRMV LCQKKNVDPDVAAKVVVAIMNSE--LTLPFKKPTEEEVAEALSGEVVQDE  
 TMV-CG LCQKKNVDPDVAAKVVVAIMNSE--LTLPFKKPTEEEIAEALSGEVKQSE  
 CGMMV FCKELNVNPM LIGHVIEAIFSQKAGVTVTGLGTLSPMGASVALSSTSVD  
 CGMMV-W FCKELNVNPM LIGHVIEAIFSQKAGVTVTGLGTLSPMGASVALSNTSVD  
 CFMMV FCHHHDVNPALVGPVIEAIFSQTAGITVTGLSTKSVEWAAAEALAPTSVD  
 YCGMMV FCHHHDVNP SLIGTVIEAIFSQSAGITVTGL----QAKSLEWAAAEALAP  
 SHMV YCEKLGVDIDTVTELIDAI STGRAGITLDHTDDKEEQLPRTL AGSSSYLE

651

TMV-KR EGALVVTSR-EVEEPSM  
 TMV-RAK EGALVVTSR-EVEEPSM  
 TMV EGALVVTSR-EVEEPSM  
 TOMV DGALVVTSR-DVEEPSI  
 PPMV EGSLKIVSS-DVGESSI  
 TMGMV VCLEPTSEEVNVNKFSI  
 TMV-OB LTLGSQTDNTDLTSKSM  
 ORSV MRFSLKLSTCAPFPSV  
 TVCV EHKEVLSLQNDAPFPCV  
 CR-TMV EHKDVLSLQNDAPFPCV  
 RMV-SH G----LSLSNNAPFPCV  
 CRMV G----LRLSNKAPFPCV  
 TMV-CG G----LSLSNNAPFPCV  
 CGMMV TCEDMDVTE DMEDIVLM  
 CGMMV-W TCEDMDVTE DMEDIVLM  
 CFMMV MDCDSDEE LEQKFPNL  
 YCGMMV VDDDMDCSSDEEDAAPH  
 SHMV EEPSDDLVLCLSDKAIVN

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*Last Updated: Thur., May 31, 2001*